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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,116	08/08/2001	Tetsuya Yamamura	P 281146 D987-CON	1705

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EXAMINER

BERMAN, SUSAN W

ART UNIT PAPER NUMBER

1711

DATE MAILED: 02/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,116

Applicant(s)

YAMAMURA ET AL.

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/252,239.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Response to Amendment

The rejection of claims over Steinmann et al (5,476,748 or CA 2,211,628) is withdrawn. It is agreed that Steinmann et al do not disclose or suggest adding elastomer particles having an average particle diameter of 10-700 nm.

The rejection of claims under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 5,981,616 is withdrawn. US '616 discloses adding polymers such as polybutadiene, polychloroprene or styrene-butadiene-styrene block copolymers but does not provide any motivation to select only elastomeric polymer having a particle size from 10-7000 nm. US '616 discloses adding organic solid microparticles of crosslinked polystyrene high polymer, crosslinked methylmethacrylate high polymer, etc., but does not suggest elastomeric microparticles or core-shell microparticles. EP 0 848 294 is equivalent to US 5,981,616.

Response to Arguments

Applicant's arguments with respect to claims 33-52 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 33-52 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The weight percents of components (A) through (F) relative to the total weight of the composition are critical or essential to the practice of the invention is disclosed, but not included in the claim(s); therefore the claims, as written, are not enabled by the disclosure. See *In re Mayhew*, 527

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F.2d 1229, 188 USPQ 356 (CCPA 1976). See page 11, lines 15-23, page 14, lines 1-14, page 18, lines 21-33, page 20, lines 1-13, page 22, lines 15-26, and page 25, lines 13-22.

Claim Rejections - 35 USC § 102/103(a)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over Melisaris et al (6,136,497, filed 3-30-1998) in view of Melisaris et al (6,099,787, filed 7-14-1998) and Bae et al (5,545,367). Melisaris et al '497 disclose compositions for stereolithography comprising a filler in a radiation curable composition. The compositions comprises cationically polymerizable compounds, such as alicyclic groups containing epoxy compounds, ethylenically unsaturated compounds, cationic and free radical photoinitiators and a polyether polyol. The compositions can contain a filler, such as a core-shell material (column 24, lines 38-47).

Melisaris et al '787 teach analogous stereolithography compositions and that the filler, such as core-shell resins, is added in an effective amount to delay or prevent a significant increase in viscosity and premature polymerization (see the Abstract and column 9, lines 20-24). Bae et al teach adding an inert

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polymer having a particle size from 100 nm to 10 microns, such as a core-shell material, to compositions for three-dimensional stereolithography comprising UV-curable epoxies and multifunctional acrylates (column 11, line 41, to column 12, line 34). Bae et al teach that the inert polymer, such as a latex of rubbery particles, can be added to thicken the composition and to improve impact resistance of the final formed three-dimensional object (column 13, lines 1-15).

It would have been obvious to one skilled in the art at the time of the invention to include the disclosed filler in the composition disclosed by Melisaris et al '497, as taught by Melisaris et al '787 in analogous art. Each reference teaches adding the same kinds of filler materials to analogous compositions for stereolithography. Melisaris et al '787 provides motivation to include a filler by teaching that the filler, such as a core-shell resin, is added in an effective amount to delay or prevent a significant increase in viscosity and premature polymerization. It would have been obvious to one skilled in the art at the time of the invention to include a rubbery polymeric core-shell resin as the filler in the compositions taught by Melisaris et al '497 and '787 in combination, as taught by Bae et al. Each of US '497 and US '787 teaches that the filler can be a core-shell resin. Bae et al provide motivation to select a rubbery core-shell resin by teaching that a latex of rubbery particles having a particle size from 100 nm to 10 microns can be added to thicken the composition and to improve impact resistance of the final formed three-dimensional object.

Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over Yamamura et al (6,127,085, filed 10-17-1997) in view of Melisaris et al (6,099,787, filed 7-14-1998) and Bae et al (5,545,367). Yamamura et al disclose compositions for stereolithography comprising components (A) through (E) set forth in the instant claims. The compositions can optionally contain a filler, such as an organic filler (column 11, lines 8-28). The disclosures of Melisaris et al '787 and Bae et al are as set forth above.

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It would have been obvious to one skilled in the art at the time of the invention to include the disclosed filler in the composition disclosed by US '085, as taught by Melisaris et al '787 in analogous art. Each reference teaches adding fillers to analogous compositions for stereolithography. Melisaris et al '787 provides motivation to include a filler by teaching that the filler, such as a core-shell resin, is added in an effective amount to delay or prevent a significant increase in viscosity and premature polymerization. It would have been obvious to one skilled in the art at the time of the invention to include a rubbery polymeric core-shell resin as the filler in the compositions taught by US '085 in combination with Melisaris et al '787, as taught by Bae et al. US '787 teaches that the filler can be a core-shell resin. Bae et al provide motivation to select a rubbery core-shell resin by teaching that a latex of rubbery particles having a particle size from 100 nm to 10 microns can be added to thicken the composition and to improve impact resistance of the final formed three-dimensional object.

Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over EP 0 848 292 in view of Bae et al (5,545,367). EP '292 teaches compositions comprising components A-F, wherein (B) corresponds to (A), (C) corresponds to (B), (D) corresponds to (C), (E) corresponds to (D) and (F) corresponds to (E) in the instant claims. The ethylenically unsaturated monomers specifically disclosed include polyfunctional (meth)acrylates. EP '292 teaches using 30-80 wt. % epoxy (B), 5-30 wt. % (meth)acrylate monomers and 5-30 wt. % polyol. The preferred polyols are alkylene oxide modified polyether polyols (page 8, lines 7-10 and 16-18). Additives that may be incorporated into the compositions include rubbery polymers, such as polybutadiene or S-B-S block copolymer, and/or resin particles (page 9, lines 22-28). However, EP '292 does not specifically teach adding elastomer particles having an average particle diameter of 10-700 nm. The disclosure of Bae et al is as discussed above.

It would have been obvious to one skilled in the art at the time of the invention to employ an inert polymer in the form of a rubbery latex or dispersion having a particle size from 100 nm to 10 microns as

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the resin particles in the compositions disclosed by EP '292. EP '292 provides motivation by teaching addition of rubbery polymers and/or resin particles, thus suggesting both elastomers and resin particles. Bae et al provide motivation by teaching that including an inert polymer in the form of a latex of rubbery particles having a particle size from 100 nm to 10 microns improves impact resistance of the final formed three-dimensional object.

Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over EP 0 848 293 in view of Bae et al (5,545,367). EP '293 teaches compositions comprising components A-F, wherein (A) corresponds to (A), (C) corresponds to (B), (D) corresponds to (C), (E) corresponds to (D) and (F) corresponds to (E) in the instant claims. The ethylenically unsaturated monomers specifically disclosed include polyfunctional (meth)acrylates. EP '293 teaches using 30-80 wt. % epoxy (B), 5-30 wt. % (meth)acrylate monomers and 5-30 wt. % polyol. The preferred polyols are alkylene oxide modified polyether polyols (page 8, lines 7-10 and 16-18). Additives that may be incorporated into the compositions include rubbery polymers, such as polybutadiene or S-B-S block copolymer, and/or resin particles (page 9, lines 22-28). However, EP '293 does not specifically teach adding elastomer particles having an average particle diameter of 10-700 nm. See the discussion of the disclosure of Bae et al set forth above.

It would have been obvious to one skilled in the art at the time of the invention to employ an inert polymer in the form of a rubbery latex or dispersion having a particle size from 100 nm to 10 microns as the resin particles in the compositions disclosed by EP '293. EP '293 provides motivation by teaching addition of rubbery polymers and/or resin particles, thus suggesting both elastomers and resin particles. Bae et al provide motivation by teaching that including an inert polymer in the form of a latex of rubbery particles having a particle size from 100 nm to 10 microns improves impact resistance of the final formed three-dimensional object.

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Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over US 6,096,796 (Watanabe et al, filed 12-10-1997) in view of Bae et al (5,545,367). EP '293 teaches compositions comprising components A-F, wherein (A) corresponds to (A), (C) corresponds to (B), (D) corresponds to (C), (E) corresponds to (D) and (F) corresponds to (E) in the instant claims. The ethylenically unsaturated monomers specifically disclosed include polyfunctional (meth)acrylates. US 796 teaches using 30-80 wt. % epoxy (B), 5-30 wt. % (meth)acrylate monomers and 5-30 wt. % polyol. The preferred polyols are alkylene oxide modified polyether polyols (column 9). Additives that may be incorporated into the compositions include rubbery polymers, such as polybutadiene or S-B-S block copolymer, and/or resin particles (column 11, lines 14-27). However, US '796 does not specifically teach adding elastomer particles having an average particle diameter of 10-700 nm. See the discussion of the disclosure of Bae et al set forth above.

It would have been obvious to one skilled in the art at the time of the invention to employ an inert polymer in the form of a rubbery latex or dispersion having a particle size from 100 nm to 10 microns as the resin particles in the compositions disclosed by US '796. US '796 provides motivation by teaching addition of rubbery polymers and/or resin particles, thus suggesting both elastomers and resin particles. Bae et al provide motivation by teaching that including an inert polymer in the form of a latex of rubbery particles having a particle size from 100 nm to 10 microns improves impact resistance of the final formed three-dimensional object.

Claims 33-52 are rejected under 35 U.S.C. 103(a) as obvious over WO 97/38354 in view of Bae et al (5,545,367). WO '354 teaches compositions comprising components A-E corresponding to A-E in the instant claims. The preferred cationically polymerizable compound possesses two or more alicyclic epoxy groups (page 7, lines 13-25). The ethylenically unsaturated monomers specifically disclosed include at least 60% by weight compounds having three or more ethylenically unsaturated bonds. WO

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'354 teaches using 30-85 wt. % epoxy, 5-30 wt. % ethylenically unsaturated monomers and 5-30 wt. % polyol. The preferred polyols are alkylene oxide modified polyether polyols (pages 17-18). Additives that may be incorporated into the compositions include rubbery polymers, such as polybutadiene or S-B-S block copolymer, and/or resin particles (pages 19-20). However, WO '354 does not specifically teach adding elastomer particles having an average particle diameter of 10-700 nm.

See the discussion of the disclosure of Bae et al set forth above. It would have been obvious to one skilled in the art at the time of the invention to employ an inert polymer in the form of a rubbery latex or dispersion having a particle size from 100 nm to 10 microns as the rubbery polymers and/or resin particles in the compositions disclosed by WO '354. WO '354 provides motivation by teaching addition of rubbery polymers and/or resin particles, thus suggesting both elastomers and resin particles. Bae et al provide motivation by teaching that including an inert polymer in the form of a latex of rubbery particles having a particle size from 100 nm to 10 microns improves impact resistance of the final formed three-dimensional object.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 33-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,287,745. Although the conflicting

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claims are not identical, they are not patentably distinct from each other because each claimed composition comprises a compound having alicyclic epoxy groups, a cationic photoinitiator, a radical photoinitiator, a polyol component and elastomeric particles having a particle size from 10-700 nm.

Claims 33-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,127,085 in view of Melisaris et al (6,099,787, filed 7-14-1998) and Bae et al (5,545,367). Although the conflicting claims are not identical, they are not patentably distinct from each other because: The claims of US '085 set forth a specific alicyclic group containing epoxy compound encompassed by the instant claim language. The comprising language of the claims encompasses the instantly claimed elastomeric particles. The claims read in view of the specification encompass an organic filler (column 11, lines 8-28). The disclosures of Melisaris et al '787 and Bae et al are as set forth above. It would have been obvious to one skilled in the art at the time of the invention to include a filler in the compositions claimed by US '085, as taught by Melisaris et al '787 in analogous art. Each reference teaches adding fillers to analogous compositions for stereolithography. Melisaris et al '787 provides motivation to include a filler by teaching that the filler, such as a core-shell resin, is added in an effective amount to delay or prevent a significant increase in viscosity and premature polymerization. It would have been obvious to one skilled in the art at the time of the invention to include a rubbery polymeric core-shell resin as the filler in the compositions claimed by US '085 in view of Melisaris et al '787 in combination, as taught by Bae et al. US '787 teaches that the filler can be a core-shell resin. Bae et al provide motivation to select a rubbery core-shell resin by teaching that a latex of rubbery particles having a particle size from 100 nm to 10 microns can be added to thicken the composition and to improve impact resistance of the final formed three-dimensional object.

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Claims 33-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 09/978787.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

(1) the oxetane compound set forth in the claims of SN '787 is encompassed by the comprising language of the instant claims, (2) the epoxy compound set forth in the claims of SN '787 can be an epoxy compound containing two or more alicyclic groups when the claims are read in view of the specification [0054].

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462.

The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

SB
February 12, 2003



Susan W. Berman
Primary Examiner
Art Unit 1711